

## Civil Air Patrol Expands Mission

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**Always ready and reliable for a multitude of emergencies, the organization now finds itself taking on security-based roles**

The Civil Air Patrol is in the process of incorporating updated technology into newer aircraft as its role becomes increasingly focused on homeland security.

The U.S. Air Force auxiliary is not decreasing search-and-rescue or other humanitarian efforts, but since the terrorist events of Sept. 11, 2001, the CAP is spending more time and money honing its skills for homeland security missions. This actually signals a return to the role that initiated the volunteer outfit. One of its first uses was to search the Atlantic coast for German submarines at the outset of World War II in December 1941.

In the past 62 years, the nonprofit organization has grown in the type of missions flown and in the number of aircraft and volunteers. There are more than 64,000 members of CAP divided into eight regions. The organization boasts 550 corporate-owned aircraft with another 4,000 owned by CAP members.

Emergency services provided over the years have included search-and-rescue and disaster relief. CAP is directly credited with saving 140 lives in the last fiscal year through search-and-rescue missions, transport of blood and other essential medical items for disaster relief. This was a jump from the previous year's 88 lives and 61 in 2001. CAP traditionally flies about 85% of the search-and-rescue hours in coordination with the USAF Rescue Coordination Center at Langley AFB, Va., and logged nearly 110,000 flight hours in the last fiscal year.

Not as well known is CAP's involvement in the war on drugs. Aerial reconnaissance is part of the arsenal brought to that campaign. At present, digital cameras are being used to provide real-time airborne reconnaissance to its own control center, or to other agencies. The installation of hyperspectral imaging sensors is planned for some of its aircraft and will help to spot and identify illegal drug cultivation.

CAP aircraft were some of the first non-military aircraft to operate over Manhattan following the lifting of the ban installed immediately after Sept. 11. The organization performed 564 hr. of transportation, reconnaissance and airborne imagery missions in the New York area. Again under the Homeland Security banner, the organization used high-resolution cameras on 179 missions to monitor the 2002 Winter Olympics sites for security breaches.

The volunteer organization also flies its light aircraft as target aircraft to simulate terrorist operations. These missions include some still flown over the Washington area by the CAP Congressional Sqdn. based here. Another role played by CAP is the airborne security watch at Cape Canaveral during launch activity by NASA and contractors. To coordinate all of its varied missions, CAP recently opened a national operations center at its headquarters at Maxwell AFB in Montgomery, Ala.

The Civil Air Patrol's missions have been expanding over the years, especially post 9/11, not only because of its record of being able to get a job done well, but also because of its response time and relative low cost of operation. "We can put an aircraft over any major metropolitan area or strategic resource within 2 hr. at a cost of less than \$90 an hour," Al Allenback, CAP executive director, said. To give a measure of its total flying, CAP logged 110,000 hr. in the fiscal year ending Sept. 30.



***CAP has orders for six Australian-built Gippsland GA-8 AirVans. The short-field-capable aircraft will be used for testing, then flying, CAP's pending hyperspectral imaging system.***

Recognizing this capability in the homeland security role, Congress recently appropriated \$6 million for CAP to acquire hyperspectral-imaging equipment. CAP selected Innovative Technical Solutions for the imaging systems and Boeing Autometrics for the software to support a visual computing network. The contract is for the basis sensor technology, which will only work in the daytime and will not detect objects underwater, underground or buried in snow.

A test imaging system is scheduled for delivery to CAP early next year, with the remaining 14 units planned for later that year following completion of testing.

Approximately 75% of CAP's fleet has been built by Cessna Aircraft and include mostly 172s and some 182s. CAP has orders for 21 new 182s from Cessna with 15 due to be delivered by year-end.

For its requirement for a heavier duty and rugged aircraft, CAP turned to the Gippsland GA-8 AirVan built in Australia. The flying organization has received the first and is scheduled to receive five more of the \$480,000 aircraft into next year. Ideally, CAP would like to buy a total of eight GA-8s, one for each region, with a possibility of adding even more later. Because of its 1,400-lb. payload and roomy cabin area, the single-piston engine aircraft has been selected to be the first to incorporate the new hyperspectral imaging system. CAP is evaluating where best to put the hole in the bottom of the fuselage to accommodate the lens of the imaging sensor. Flight test on the sensor system mated with the GA-8 is expected to start in the first quarter of this year.

I had the opportunity to fly the first CAP GA-8 while it was here last month. The flight was with the Northeast Region commander, Col. Rick Greenhut, in the left seat, while I took the right seat. Also along as an observer was the service's director for homeland security, USAF Brig. Gen. David Clary, and a two-person television crew.

GREENHUT DETAILED some of the features unique to the GA-8, which make it desirable for CAP operations. The aircraft has fixed gear with a nose wheel with a spring attached for limited flexibility. There are separate doors for the pilot and copilot and a large sliding cargo door on the left side. The side windows are large and bulge slightly outward making it easier to see under the aircraft, a good feature in search-and-rescue missions.

The AirVan is powered by a Continental IO-540 piston engine developing 300 hp., giving the aircraft a never-exceed speed of 185 kt. and a normal cruise speed of 135 kt. Because of its use in the Australian outback, there is a connection below the pilot's door to connect a 12-volt car battery to jump start the aircraft's electrical system, if necessary.

Greenhut was to make the landing and takeoff while I flew the aircraft in the Chesapeake area. As configured, the left-seat pilot normally flies the CAP GA-8, with the right seat occupied by an observer. There is a floor-mounted control column in both positions, but the right seat lacks most of the primary flight control displays on the instrument panel, except for a basic attitude indicator and altimeter. While flying, I had to refer to Greenhut's displays for other information.

The AirVan is equipped with a Garmin/GPS with color screen, King radios and dual nav/comms, ADF and transponder. Greenhut said the manufacturer is looking at possibly adding a King autopilot.

The takeoff roll at Andrews was in the neighborhood of 2,200 ft. as Greenhut rotated at 60 kt. Climb to our final altitude of 2,000 ft. was brisk. Greenhut said that for a typical CAP mission at the aircraft's maximum gross weight of 4,000 lb. and at a 6,000-ft.-alt. airport, it would require close to 4,000 ft. to clear a 50-ft. obstacle. Temperature at the airport was 80F. With a 75% power-setting producing an 11.5-gal./hr. fuel burn, the aircraft can fly 7.5 hr. to dry tanks.

I found the GA-8 fun to fly, although the right seat was a little tight for me and I would have preferred a little more room to reach the non-movable rudder pedals. I also would have liked a rudder trim and aileron trim at times when making turns. There is a wheel pitch trim. As expected, it was easier to turn to the left rather than the right with the piston engine. With its long wingspan, there was adverse yaw in turns, requiring more rudder than the aircraft he normally flies, Greenhut said.

Greenhut did the evaluation of the AirVan for the CAP mission, and said that the clean stall speed was 60 kt. and stall speed in the dirty configuration was 52 kt. He said that even in an accelerated stall they were benign, with no dramatic wing drop.

Visibility was excellent during the return to Andrews while I was looking for F-16s in the pattern. Greenhut took control of the GA-8 and lowered the flaps to the 38-deg. landing position. There did not appear to be much pitch change during deployment of the flaps. Greenhut said that with the same altitude, gross weight and temperature used in the takeoff computation, it would require 1,476 ft. to clear a 50-ft. obstacle on landing. The aircraft has very good short-takeoff-and-landing characteristics.

***Of the 550 corporate-owned aircraft in the Civil Air Patrol fleet, the majority are Cessna 182s (left). CAP has orders for 21 new 182s to replace older aircraft and add to existing inventory.***

The GA-8 would appear to be an ideal aircraft to fulfill CAP missions. The interior capacity gives the service ample flexibility to load six people, or a scanner, or the new hyperspectral imaging system with crew to operate the system.

THE CIVIL AIR PATROL also is well-known for its role in aerospace education, both for its own cadets and the general public. In this capacity, CAP is trying to interest its own cadets, as well as other students, to consider careers in aerospace fields.

In a recent first for CAP, early last year it submitted a Concept of Operations document to the Air Force detailing what it would like to do to meet its mission requirements, especially in the homeland defense arena. CAP later filed a Concept of Employment with USAF, outlining how it would conduct its missions and the resources needed. Feedback from the service should give us a good understanding of our future mission requirements and what is needed for funding, Allenback said.